Acta Gymnica, vol. 44, no. 2, 2014, 77–83
doi: 10.5507/ag.2014.008

Self-perceptions of decision making competence in Spanish football players

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Background: It is known that competence to make decisions is a fundamental aspect of sport competition. **Objective:** This study has analyzed the decision profile of a sample of Spanish football players of different levels of expertise. **Methods:** 690 Spanish football players of national and international level completed the decision making questionnaire, which cover three dimensions – perceived decision competence, decision anxiety and commitment with decision learning. MANCOVA and ANOVA analysis were carried out to analyse the differences in each dimension based on the level of expertise. **Results:** Results showed that perception of decision making competence increased and the anxiety decreased with the level of expertise. **Conclusions:** This study confirmed the usefulness of this questionnaire in the process of training for coaches and sport psychologists.

Keywords: expertise, team sports, soccer, expert performance

Introduction

Tenenbaum and Bar-Eli (1992) emphasized in their review of the athletes' decision preferences that the decision making styles are defined as the methods learned to process information and make decisions, and they are considered as habits acquired by the person according to their experience. To date, there have been few studies concerning the preferences in decision making in sport context (García, 2006, 2009; García, Ruiz, & Graupera, 2009; Ruiz, Graupera, & Navarro, 1998).

Decision making in sport is essentially a cognitive and emotional process. Decisions are influenced by the affective mood of the athletes, their fear, confidence in their capabilities, desires, fatigue, physical or psychological pressure or even by the subjective evaluation of the risk involved in such decisions (Ruiz, Graupera, & Navarro, 1998). The dynamics and changing nature of the game provide that players cannot repeat their decisions under the same situations. Different studies have found out that players' decisions through the game were affected by factors such as competition phase, if the athletes were winning or losing, and what they could achieve or lose. In all those situations there was a high risk on the decision making (Bakker, Whiting, & Van der Brugg, 1993; Becker, 2001). In sports like football where the decision making component is very important, psychological regulation acquires a special relevance given that psychological processes do not act independently but are together involved in every single player action. As Nitsch and Munzert (2002) point out, cognitive, emotional, social and motor dimensions are in constant interaction.

So far, self-perceptions of decision making competence by athletes has not been deeply studied by the scientific community. However, the information from those studies focusing on this topic, it could be acknowledged that they are not easy to analyze. Sometimes they are imprecise, and it is a field where the conscious and the unconscious are intermingled and is therefore advisable that scenes, either as questionnaire items or game situations, are considered true enough to evoke athletes' real game situations and so, they could answer accurately (Ruiz & Arruza, 2005). Hence, what really matters is to seek how players assess themselves in this competence, which responsibilities are capable to assume when making decisions in the game, or what fears threaten or prevent them from making effective decisions.

Research in sport psychology and performance has already proved the mediating role of perceptions

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of competence in decision making (e.g. Hannin, 2007; Murphy, 2012; Smith & Bar-Eli, 2007; Tenenbaum & Bar-Eli, 1992). Within this context, one of the most relevant aspects treated refers to the athletes' confidence in their ability to be good decision makers in their sport (Feltz, 2007; Griffin & Keogh, 1992; Gould, 2009).

Up to now, there are few studies addressing the role of the emotional and subjective aspects in decision making. For instance, the integrative model of Tenenbaum (2003) explicitly refers to the role of emotions in the process. For this researcher, aspects such as emotional regulation that keeps them in the optimal functioning zone (IZOF), or the beliefs in self-efficacy that athletes have to produce a certain type of answer, are key elements to decide and act.

Another proposal is the decision making style in sport (Ruiz & Graupera, 2005), a multidimensional model in which the cognitive and the emotional dimensions are closely considered in decision making. This approach attempts to clarify the subjective perspective that athletes have over their decision making, their perceptions and cognitions about their ability to decide and the fears or concerns when making decisions that their sports claim. As Gil et al. (2012) indicated one of the important contributions of the model has been to highlight the existence of different aspects in decision making that are highlighted and considered by athletes.

In order to address these subjective perceptions, the authors developed the Decision Making Style in Sport Questionnaire (DMSQ) (Ruiz, Graupera, & Sanchez, 2000). This instrument explores three great aspects of decision making, two of positive and one of negative nature. The commitment athletes have with its improvement in tactical and decision aspects and their perceived competence when deciding on their sport are positive factors, since it is expected that athletes seek to improve and feel increasingly competent as the skill improves. The third factor, considered less favorable, is about perceptions of not being able, of being afraid to decide and that generates anxiety when there is a possibility of error in their decisions. This is an approach that seeks to integrate the conative with the volitional, from the perspective of the protagonist of the decisional act, the athlete.

The study of subjective perceptions of decision making

The construct validity of the three-dimensional model has been tested in various samples of Spanish athletes in different sports and different levels of expertise (García, 2006, 2009; García, Ruiz, & Graupera, 2009; Gil, Jimenéz, Moreno, Del Villar, & García, 2010; Gil et al., 2012; Jiménez, 2004; López, 2000; Ruiz & Graupera, 2005). In addition the model has been reproduced in cross-cultural studies with athletes from various countries (Ruiz et al., 2002). Gaspar (2001) conducted their adaptation and validation in Portugal, finding that the original Spanish three-factor structure was maintained in the Portuguese study with elite athletes from different sports (Ferreira, Gaspar, & Ruiz, 2006). Other studies such as López (2004) and Gaspar (2001) with athletes of different levels of expertise but in which world-class athletes predominated, highlighted that the decision commitment to learning, and the perceived decisional competence increased with the level of expertise while anxiety and strain to decide was lower in the higher-level athletes.

López (2002) studied 12 wheelchair basketball teams ranked at the maximum national level to analyze the decisional profile of players as a function of position in the field, degree of disability or game scoring. Also, he tried to relate the years of experience, the expertise level and training hours in decisional profiles, finding that international players (with more experience) showed a different profile.

García, Ruiz, and Graupera (2009) applied the questionnaire to male ($N = 45$) and female players ($N = 76$) of volleyball with different level of expertise – local, national and international. The results showed good reliability in the factors of the questionnaire when applied to samples within the same sport. No significant differences were found in the volleyball player's decisional profile, which showed a moderate perceived competence, low anxiety and high commitment (profile V). The commitment (CDL) and the perceived competence (PDC) moderately increased, whereas anxiety (ASD) considerably decreased as increase the skill level.

These results consolidate that the confidence to decide is largely determined by the personal preferences of athletes regarding the commitment acquired when following the advice of the coach, knowing the habits of the opponents, controlling their fears referred to the possibility of error to decide or feel able to decide in situations of decisional requirement. To this regard, the study of Gil et al. (2010) found that the commitment to the decision making learning (CDL) significantly and positively predicted intrinsic motivation within volleyball players, unlike the Anxiety and Strain to Decide (ASD) and Perceived Decisional Competence (PDC). The volitional component is a crucial element in decision making and the act of deciding demands intense preparation and favorable psychological availability.

More recently, Gil et al. (2012) applied the DMSQ questionnaire to a group of young football players (11–14 years old) finding that there were significant differences depending on the players' performance in the dimension of Perceived Decisional Competence in accordance with the studies of Gaspar (2001) and

García, Ruiz, and Graupera (2009). Interestingly, as the level of performance of the players increased, so did the anxiety dimension and strain to decide, finding no differences in the dimension of commitment to decision making learning, which differs with the findings by Ruiz et al. (2002) or by Jimenéz (2007).

So that, the main purpose of the study was to analyze the subjective dimensions of decision making in a wide range of football players of different levels of expertise by using the DMSQ and to determine what differences exist depending on the level of expertise of the participants.

Method

Participants

690 Spanish football players participated in the study, of which – 467 were field football players (67.7%), 211 were futsal players (30.6%) and 12 were football 7 players (1.7%). The age of all of them ranged from 14 to 39 years old (M = 21.46, SD = 5.43). Three levels of expertise were established – local (N = 156), national (N = 402) and international (N = 132). All participants were recruited from 46 clubs, including several Spanish national teams. All of them were informed about the aims of the study and they freely accepted to participate in it. The participants were required to sign an informed consent by themselves or by their parents or tutors when athletes were under 18 years old.

Instrument: Decision Making in Sport Questionnaire (DMSQ)

This questionnaire consists of 30 items measuring three factors of decision making – Perceived Decisional Competence (PDC), Anxiety and Strain to Decide (ASD) and Commitment in the Decisional Learning (CDL). Each of the factors is formed of 10 items, and also can be calculated the global score of the questionnaire, called Global Decisional Competence (GDC) based on the 30 items. The questionnaire was validated by Ruiz, Graupera, and Navarro (1998) and Ruiz and Graupera (2005). The α coefficient in the Perceived Decisional Competence was .80; Anxiety and Strain to Decide .86 and in the Commitment in the Decisional Learning .74. All the coefficients were significantly higher than .70, which is the value typically considered as acceptable on the reliability coefficients (Nunnally, 1973). In the global scale of decisional competence with a larger numbers of items, the α coefficient obtained a value of .82, above .80, which is the recommended value if the test is for general application with overall athletes (DeVellis, 2012; Netemeyer, Bearden, & Sharma, 2003).

Procedure

We contacted the head coaches of the different teams regarding participation of their players in this study. All coaches agreed to allow their players to participate. Data of all participants were collected during designated training sessions. One member of the research team was present when the questionnaire was applied. Before completing the questionnaire in Spanish all participants were informed that the survey examined their perceptions about decision making in their sport, and that honesty in responses was vital to the success of the study. It was also explained that all responses would be kept strictly confidential and would be used only for research purposes. Participants signed an informed consent form prior to completing the questionnaire. It took about 10–15 minutes to complete.

Analysis

MANCOVA and ANOVA analysis were conducted using SPSS (Version 20; IBM Corporation, Armonk, NY) to analyze the differences in function of the level of expertise of the participants. The three dimensions of the questionnaire were measured based on the level of expertise and considering the years of experience and age of the participants as covariables. The confidence level was set at 95%.

Results

Figure 1 depicts the obtained values in the Likert scale (from 1 to 4 points) in each of the factors across level of experience.

Age and experience

To clarify the role that age or years of experience may have and also control their possible confounding effect of differences due to the level of expertise, a multivariate analysis of covariance (MANCOVA) was conducted. As the three dependent variables were used the three factors – Perceived Decisional Competence, Anxiety and Strain to Decide and Commitment in the Decisional Learning. The independent variable (or intergroup factor) was the level of expertise: local, national and international. Firstly, as statistical guidelines recommend, multivariate contrast were conducted (Table 1).

Only one co-variable showed a significant association with the dependent variable, years of experience, with a great effect size (Table 1). Then, univariate contrasts were carried out. In this case, the age showed a slight but significant relationship with the Perceived Decisional Competence (p = .015; η^2 = .009) and Anxiety and Strain to Decide (p < .003; η^2 = .013). The covariable years of experience showed no significant effect.

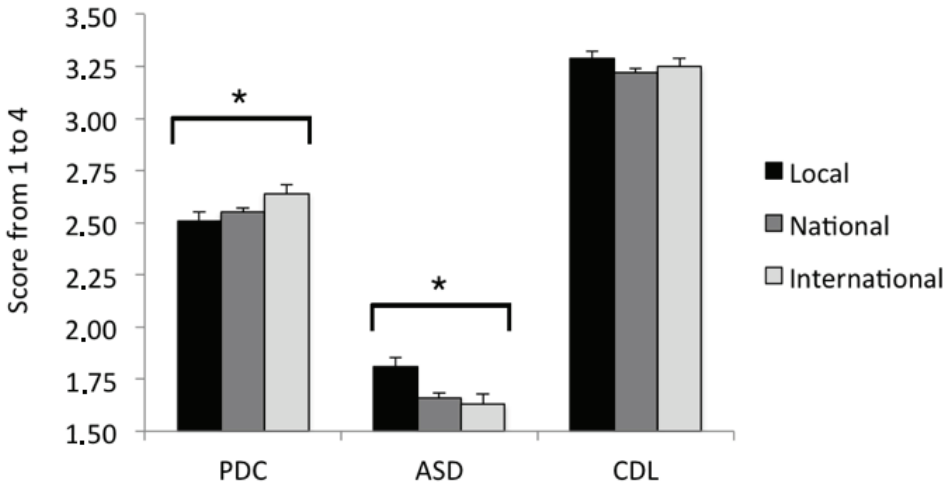

Figure 1. Perceived Decisional Competence (PDC), Anxiety and Strain to Decide (ASD) and Commitment in the Decisional Learning (CDL) based on the expertise level. Errors bars represent the standard error of the mean. * $p < .05$

Table 1
MANCOVA multivariate contrasts

	F	*df* error	*p*	η^2
Covariables				
Age	1.51	666	.195	.009
Years of experience	4.66	666	.001	.027
Independent variable				
Expertise level	2.82	1,334	.004	.017

Note. *F* = Fisher's F ratio, *df* = degrees of freedom, η^2 = eta-squared

Differences between the expertise level groups

The multivariate contrast showed a significant effect ($p = .004$) of the level of expertise over the set of dependent variables. The univariate contrasts revealed a direct connexion between the expertise level and the Perceived Decisional Competence, $p = .039$; $\eta^2 = .010$ (Figure 1). As Figure 1 showed, it was also found a linear decreasing trend in the factor Anxiety and Strain to Decide depending on the expertise level, as confirmed by the univariate contrast, $p = .031$; $\eta^2 = .010$. In the factor Commitment in the Decisional Learning differences were not found among level of expertise.

Decisional Competence and Expertise Level

An analysis of covariance (ANCOVA) was conducted using as dependent variable the global score of DMSQ (Global Scale of the Decisional Competence), which had not been included in the multivariate analysis due to it is a scale calculated based on the partial scales (factors). As in the previous analysis the independent variable (or intergroup factor) was the expertise level – local, national and international. The age and years of experience were also included as covariables in order to control the possible confounding effect on expertise level. Neither of the two variables was significantly associated with the dependent variable.

Finally, a contrast of the effect of the expertise level on the global scale of decisional competence was conducted. The results showed that the global decisional competence was associated with skill level, albeit with a small effect ($p = .044$, $\eta^2 = .009$).

Discussion

The main objective of this study was to analyze the self-perceptions of decision making competence among Spanish football players of different levels of expertise. This research was based on the theoretical background that, besides perceptual-cognitive aspects, it is necessary to consider the personal and subjective perceptions of athletes, that is, their willingness and desire to make decisions to properly address the decision making in sport. The scientific literature has shown the critical role of athletes' perceptions of competence, and this applies also to the decision making (Beilock & Carr, 2001).

The results of this study showed that self-perceptions of decision competence changed with experience and expertise level. These results are in consonance with Tenenbaum's ideas about perceptions of self-efficacy and competence in decision making (Tenenbaum, 2003). Making-decisions in sport implies the risk of being judged, but also to choose for a solution that is not always the best and can even lead to compromising

situations for the team, which always involves reactions of people around the athlete.

As we can deduce from this study, there are two dimensions that differentiates the expertise level of participants – Perceived Decisional Competence and Anxiety and Strain to Decide. International participants got higher scores on the perceived decisional competence and less in the anxiety to decide subscale than the other two groups. Training and experience was a key factor in these results. Experience in preparing for being capable to better make decision, increased the self-perceptions of competence and the capacity to cope with pressure (Ruiz & Arruza, 2005; Ruiz, Sánchez, Durán, & Jiménez, 2006; Tenenbaum, 2003).

Reinforcing the perception of being able to decide at any time regardless of the difficulty of the situation is an aspect of great importance for coaches (Dosil, 2006). Training athletes, since the formative stages, to be able to decide in highly demanding situations, it becomes one of the main aims of the training in team sports, since doubts, fear and anxiety that they can generate, can lead to wrong decisions.

As in the study of Tenenbaum, Levi-Kolker, Sade, Lieberman, and Lidor (1996) conducted with athletes in tennis (beginner, intermediate and advanced levels), the level of performance was strongly related with the perception of competence that the subjects possessed in football, and participants did not differ in their commitment to learn how to decide, nor the determination to get involved in improving their decisional competence.

Thus, the present study gathers to those works that have already shown similar results in other sports like basketball (Gaspar, 2001; Jiménez, 2004), wheelchair basketball (López, 2002), volleyball (García, Ruiz, & Graupera, 2009; Gil et al., 2010; Miranda, 2010), soccer (Gil et al., 2010, 2012), hockey (Palomo et al., 2011) or high school team sports (Aguilar, Tamayo, & Chirosa, 2014).

Confidence in one's own resources to make decisions and feel competent should be further considered by coaches, and should be reinforced in the training sessions since they become true mediators of decision making in sport.

The emotions and cognitions should be closely taken into account in sports activity, and as Tenenbaum (2003) point out, set the most favorable areas for the athletes. The DMSQ questionnaire studies the subjective dimension of decision making and approach the emotional performance area, which certainly influences the effective performance in the field.

Acknowledgments

The present study has been possible thanks a grant given by the Cathedra Real Madrid and European University of Madrid (2010–2011). The study was also supported by the project "Support for creating excellent research teams and intersectoral mobility at Palacký University in Olomouc II" (CZ.1.07/2.3.00/30.0041).

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